



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level

CANDIDATE
NAME

CENTRE
NUMBER

--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--

* 6 9 1 9 4 2 5 3 2 6 *

ENVIRONMENTAL MANAGEMENT

8291/13

Paper 1 Lithosphere and Atmosphere

May/June 2010

1 hour 30 minutes

Additional Materials: Answer Booklet/Paper

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil for any diagrams, graphs, tables or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO NOT WRITE IN ANY BARCODES.

Section A

Answer **all** questions.
Write your answers in the spaces provided on the question paper.

Section B

Answer **one** question from this section.
Answer the question on the separate answer paper provided.

At the end of the examination,

1. fasten all separate answer paper securely to the question paper;
2. enter the question number from Section B in the grid opposite.

For Examiner's Use	
Section A	
1	
2	
Section B	
Total	

This document consists of **11** printed pages and **1** blank page.



Section A

Answer **all** questions in this section

- 1 (a) Study Fig. 1.1 which shows how P and S seismic waves pass through the Earth. Answer the questions that follow.

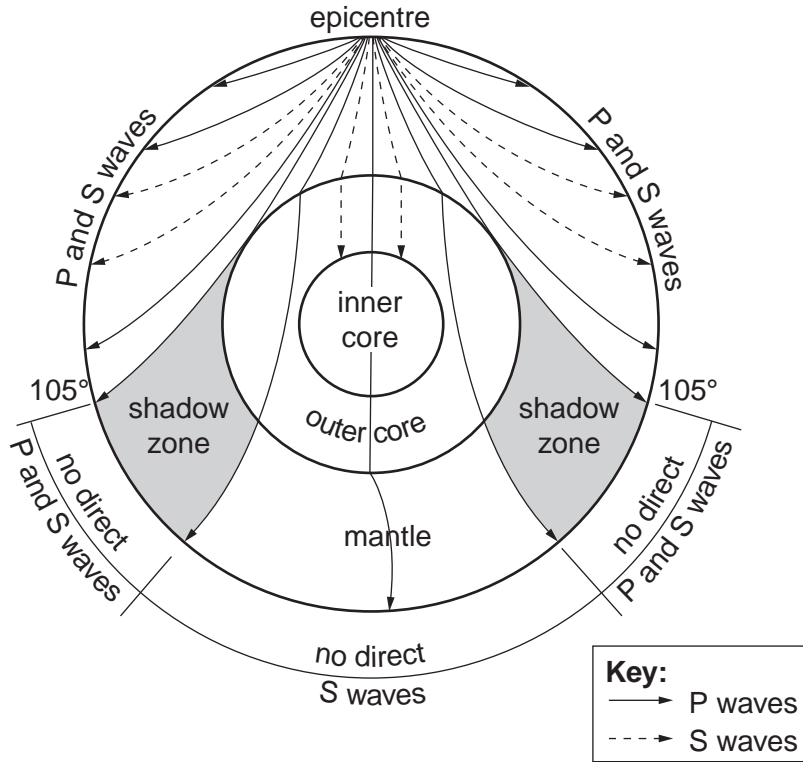


Fig. 1.1

- (i) What is meant by the term *seismic waves*?

.....
.....
.....
..... [2]

- (ii) Distinguish between P and S waves.

.....
.....
.....
..... [2]

(iii) Explain why no direct P and S waves are recorded in the shadow zones indicated in Fig. 1.1.

.....
.....
.....
.....
..... [3]

(b) Seismic waves from an earthquake can be detected using a seismograph. The time difference between a detection of P waves and S waves is related to the distance of the seismograph from the epicentre of the earthquake.

The curved line on Fig. 1.2 shows the distance out from seismograph 1 of the epicentre.

(i) Draw, onto Fig. 1.2, two more curved lines to show how it is possible to use three seismographs to find the earthquake's epicentre. [1]

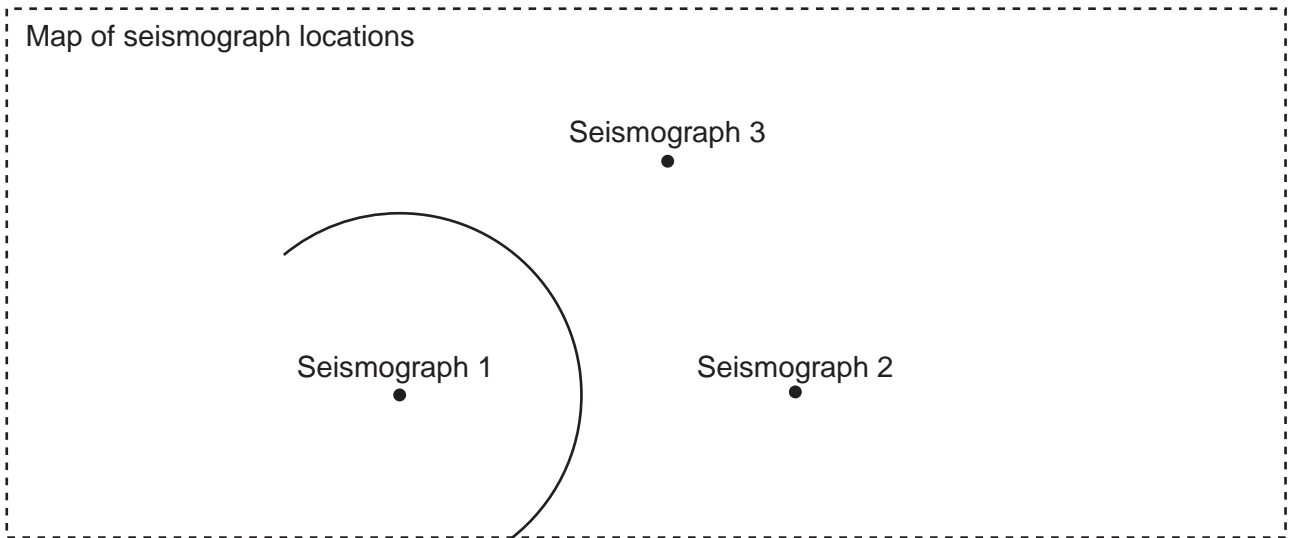


Fig. 1.2

(ii) Mark with an X on Fig. 1.2 the location of the epicentre. [1]

(iii) Give **one** reason why recordings from at least three seismographs are needed in order to locate the epicentre of an earthquake.

.....
..... [1]

(c) Describe and suggest reasons for the pattern of earthquakes in the period 1963-1968 as shown in Fig. 1.3.

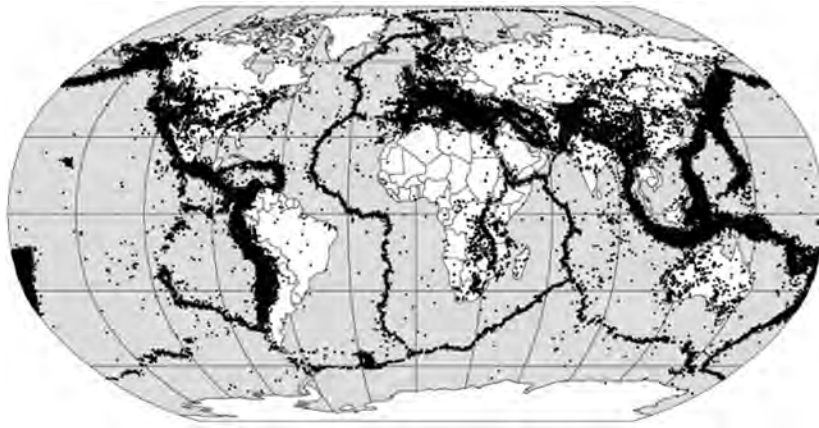


Fig. 1.3

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[6]

2 (a) Fig. 2.1 shows a barometric chart for a summer day in the southern hemisphere.

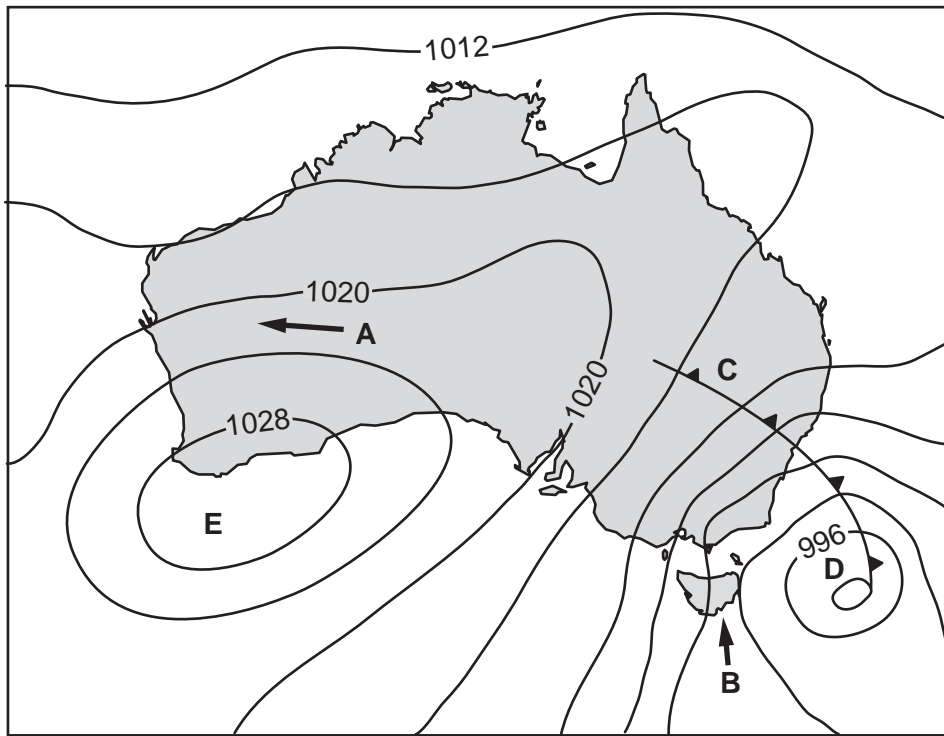


Fig. 2.1

- (i) Write the values 1016mb and 1000mb in their correct positions in Fig. 2.1. [2]
- (ii) The arrows at points **A** and **B** show the horizontal direction of air movement at these points. Explain why air movement occurs in these directions.

.....

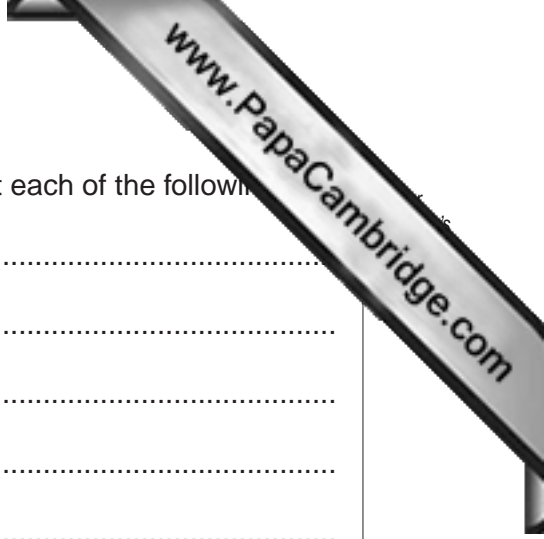
 [2]

- (iii) Name the weather systems to be found at locations **C**, **D** and **E**.

C

D

E [3]



(iv) Describe and give a reason for the weather conditions at each of the following

C
.....
.....
.....
.....
.....
.....

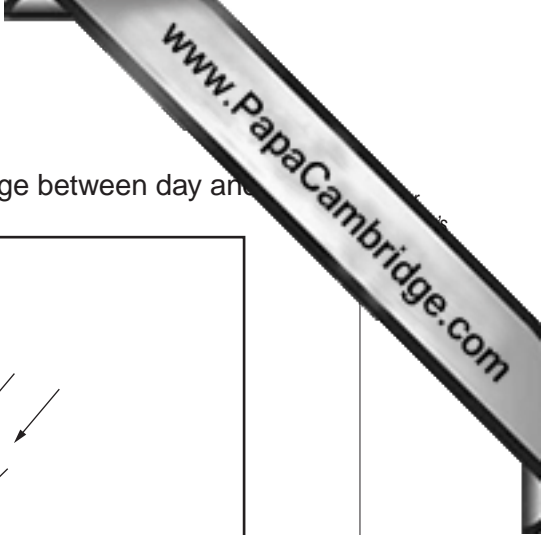
D
.....
.....
.....
.....
.....
.....
.....

[4]

(v) Describe how satellite photography assists the process of interpreting weather conditions.

.....
.....
.....
.....
.....
.....
.....
.....

[4]



(b) Fig. 2.2 shows how wind direction in a coastal area may change between day and

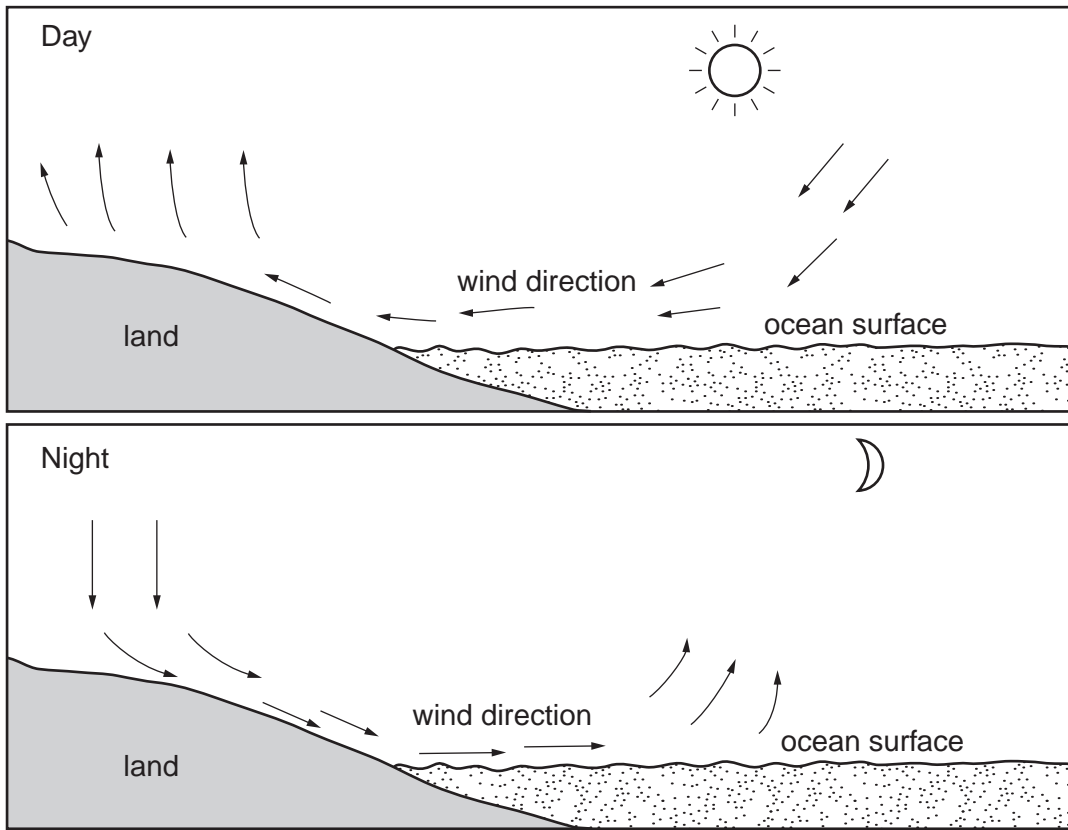


Fig. 2.2

Suggest reasons for the changes between day and night shown in Fig. 2.2.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[5]

Section B

Choose **one** question from this section

- 3 (a) Rocks undergo weathering by chemical and mechanical processes. Which process occurs at a place, and how quickly, depends on the climate of that place.

Use Fig. 3.1 to describe how temperature and precipitation interact to affect the type and rate of rock weathering. [10]

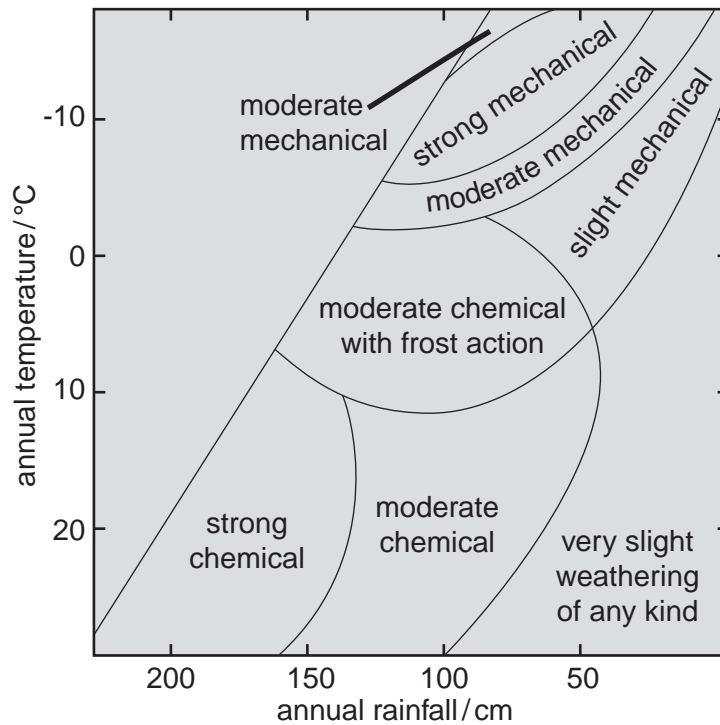


Fig. 3.1

- (b) Slope instability is a major hazard in some situations.

Using examples with which you are familiar, describe how far human activity contributes to slope instability. Assess **two** ways in which slope instability might be managed. [30]

[Total: 40]

- 4 (a) Carbon monoxide, nitrogen oxides and sulphur dioxide contribute to the atmospheric pollution of many cities. Briefly describe the sources and effects of these types of pollution.
- (b) With reference to urban areas with which you are familiar, describe and evaluate the strategies that have been adopted to reduce atmospheric pollution. [30]

[Total: 40]

- 5 (a) Briefly describe how a combination of human activity and natural processes contribute to soil erosion shown in Fig. 5.1.

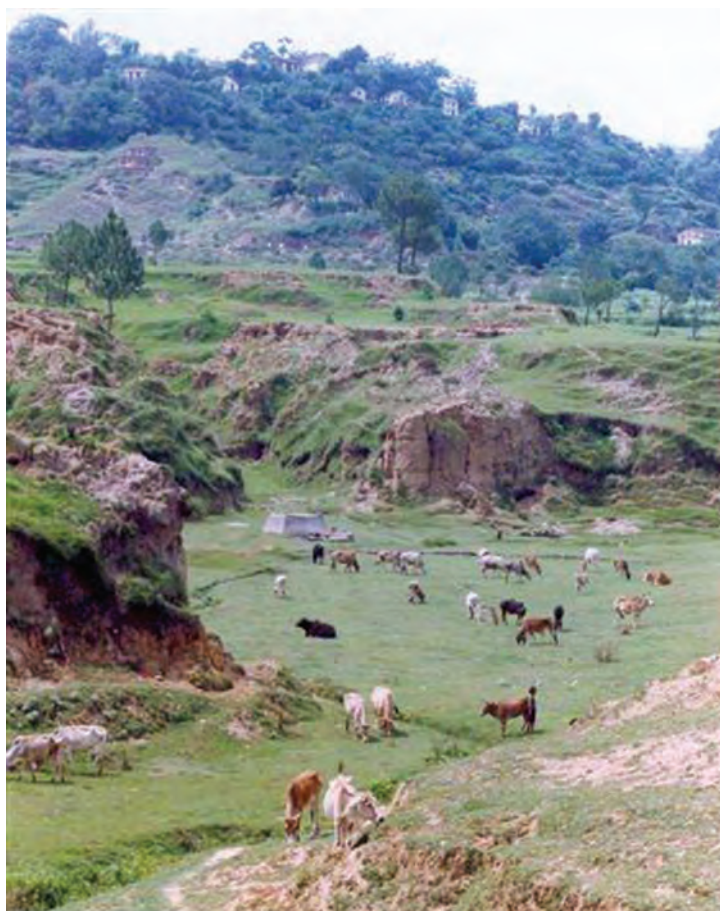


Fig. 5.1

- (b) Using examples with which you are familiar, describe how the rapid development of an urban region can have negative effects upon its local environment. Assess two measures that could be adopted to reduce these effects. [30]

[Total: 40]

Copyright Acknowledgements:

Question 1c © www.mysciencebox.org/book/export/html/S26.

Question 5 © www.portal.unesco.org/science/fr/ev.php_url_ID=4639&url_Do=Do_Topic&url_section=201.html.

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of